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INTERNATIONAL BUREAU OF WIPO

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Title of Invention:
FUNCTIONALIZED POLYMER WITH LINKING GROUP

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AMENDMENT UNDER ARTICLE 19
Letter (Section 205(b))

The subject international patent application is being amended under Article 19 pursuant to claim amendments being submitted herewith as replacement pages 25-27.

Originally presented claims 1-20 are replaced by new claims 1-20. Originally presented claims 1-16 are canceled. The relationship between the original and new claims is as follows:

- Original claim 17 has been slightly amended: "heteroatom" has been amended to "siloxane unit" (support can be found at, e.g., lines 19-23 of p. 7 of the specification as filed) and a now extraneous limitation has been removed. As amended, original claim 17 now is new **claim 1**.
- Original claim 18 has been canceled, replaced by new **claims 2-5**; support can be found at lines 19-23 of p. 7 of the specification as filed.
- Original claim 19 now is new **claim 6**.

The remaining newly presented claims find support as follows (with all citations being to the specification as filed):

- New claim 7: page 5, line 7 – page 6, line 29.
- New claim 8: page 4, lines 23-31.
- New claims 9-16: page 7, lines 19-23 and page 8, line 18 – page 9, line 10.
- New claims 17-20: page 4, line 12 – page 6, line 29.

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No Demand has been or is planned to be submitted in this application, so the IB
is the only recipient of this communication.

Respectfully submitted,



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CLAIMS

We claim:

1. A method of making an amine-functionalized polymer, comprising:
 - a) in a reaction medium, reacting a living polymer with a cyclic compound comprising at least one siloxane unit in its ring structure so as to provide an intermediate functionalized living polymer;
 - b) introducing into said reaction medium an amine comprising an active hydrogen atom attached to the amino nitrogen atom of said amine and allowing said amine to chemically bond to said intermediate functionalized living polymer,thereby providing said amine-functionalized polymer.
2. The method of claim 1 wherein said cyclic compound comprises at least three siloxane units in its ring structure.
3. The method of claim 2 wherein said ring structure of said cyclic compound consists of silicon and oxygen atoms.
4. The method of any of claims 2 to 3 wherein at least one of the silicon atoms of said cyclic compound comprises at least one C₁-C₆ substituent.
5. The method of any of claims 2 to 3 wherein each of the silicon atoms of said cyclic compound comprises at least one C₁-C₃ alkyl group.
6. The method of claim 5 wherein said cyclic compound is hexamethylcyclotri-siloxane or octamethylcyclotetrasiloxane.
7. The method of any of claims 1 to 6 further comprising the step of providing said living polymer via anionic solution polymerization.

8. The method of claim 7 wherein said polymer is a substantially random interpolymer comprising mer units derived from one or more vinyl aromatics and one or more polyenes.
9. A functionalized polymer comprising an elastomer, a terminal functional group comprising at least two different heteroatoms and, intermediate said elastomer and said functional group, at least three siloxane units.
10. The functionalized polymer of claim 9 wherein each silicon atom in each of said siloxane units is substituted with C₁-C₃ alkyl groups.
11. The functionalized polymer of any of claims 9 to 10 wherein said functional group comprises a primary or secondary amino group.
12. The functionalized polymer of any of claims 9 to 11 wherein said functional group comprises siloxane functionality.
13. The functionalized polymer of any of claims 9 to 10 wherein said functional group comprises a halogen atom.
14. The functionalized polymer of any of claims 9 to 10 wherein said functional group is a sultone.
15. The functionalized polymer of any of claims 9 to 14 wherein said siloxane units are derived from a polysiloxane.
16. The functionalized polymer of claim 15 wherein said polysiloxane is hexamethylcyclotrisiloxane or octamethylcyclotetrasiloxane.
17. The functionalized polymer of any of claims 9 to 16 wherein said elastomer is a substantially random interpolymer comprising mer units derived from one or more vinyl aromatics and one or more polyenes.

18. The functionalized polymer of claim 17 wherein said elastomer is an interpolymers of styrene and butadiene.
19. The functionalized polymer of claim 18 wherein said interpolymers comprises from 20 to 35% by weight mer units derived from styrene.
20. The functionalized polymer of any of claims 18 to 19 wherein said interpolymers has a 1,2-microstructure of from 25 to 65%.